46. (Thrice Amended) A method for manufacturing an interconnect structure, the method comprising:

forming a dielectric material over a semiconductor substrate and having a top surface;

forming a recess within the dielectric material extending from the top surface of the dielectric material to the semiconductor substrate;

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filling the recess with an electrically conductive material, wherein filling the recess with the electrically conductive material further comprises:

forming a diffusion barrier layer in contact with the semiconductor substrate and the dielectric material;

forming a seed layer upon the diffusion barrier layer and composed of a material having a melting point less than that of the material from which the diffusion barrier layer is composed and being selected from a group consisting of ceramics, metallics, and intermetallics;

forming a conductor layer upon the seed layer including the portion of the seed layer within said recess; and

forming an energy absorbing layer on the conductor layer that is composed of a material having both a higher thermal insulation capacity and electric insulation capacity than that of the material from which the conductor layer is composed;

wherein the recess includes:

a first portion having an uniform width and extending within the dielectric material to the top surface of the dielectric material;

a second portion having a height and a uniform width that is less than the

width of the first portion and that is not greater than 25% of the height, the second portion extending from the semiconductor substrate to terminate at the first portion; and

wherein the filling the recess is performed by causing the electrically conductive material to flow within the recess by applying omnidirectional heating.

48. (Thrice Amended) The method as defined in Claim 46, wherein filling the recess with the electrically conductive material by applying omnidirectional heating is performed with a furnace.

49. (Once Amended) The method as defined in Claim 46, wherein the diffusion barrier layer is upon the top surface of the dielectric material.

50. (Once Amended) The method as defined in Claim 46, wherein the diffusion barrier layer is composed of a material selected from the group consisting of aluminum nitride, tungsten nitride, titanium nitride, and tantalum nitride.

51. (Once Amended) The method as defined in Claim 46, wherein the seed layer is composed of a material selected from the group consisting of aluminum, titanium nitride, titanium, and titanium aluminide.

52. (Once Amended) The method as defined in Claim 46, wherein the conductor layer is composed of a material selected from the group consisting of aluminum and copper.

53. (Once Amended) The method as defined in Claim 46, wherein the material from which the energy absorbing layer is composed is selected from the group consisting of titanium, titanium nitride, tungsten, tungsten nitride, silicon nitride, silicon dioxide, tantalum, tantalum nitride, and carbon.

54. (Twice Amended) A method for manufacturing an interconnect structure, the method comprising:

forming a lower substrate situated on a semiconductor substrate assembly, said lower substrate defining a plane;

forming a dielectric material on the lower substrate having a planar top surface;

forming a recess within said dielectric material, said recess including a contact hole situated below a trench, said contact hole terminating at an end thereof at the lower substrate and terminating at an opposite end thereof at said trench, said contact hole being oriented substantially perpendicular to the plane of said lower substrate, said trench extending from said opposite end of said contact hole to a top surface of said dielectric material, the trench extending substantially parallel to the plane of said lower substrate; and

forming an electrically conductive layer situated within and filling both the contact hole and the trench and extending to terminate above the planar top surface of the dielectric material;

wherein the filling both the contact hole and the trench is performed by causing the electrically conductive layer to flow into the contact hole and the trench by applying omnidirectional heating; and

wherein forming the electrically conductive layer comprises:

forming a diffusion barrier layer in contact with the lower substrate and the dielectric material;

forming a seed layer upon the diffusion barrier layer and composed of a material having a melting point less than that of the material from which the diffusion barrier layer is composed and being selected from a group consisting of ceramics, metallics, and intermetallics;

forming a conductor layer upon the seed layer; and

forming an energy absorbing layer on the conductor layer that is composed of a material having both a higher thermal insulation capacity and electric insulation capacity than that of the material from which the conductor layer is composed.

55. (Twice Amended) The method as defined in Claim 54, wherein forming an electrically conductive layer by applying omnidirectional heating to cause the electrically conductive layer to flow into the contact hole and the trench is performed with a furnace.

56. (Once Amended) The method as defined in Claim 54, wherein the contact hole has a height and a width, and the height is greater than four times the width.